



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/562,918

07/19/2006

Shinichi Morimoto

8028-1058

3823

466 7590 08/19/2008

YOUNG & THOMPSON
209 Madison Street
Suite 500
ALEXANDRIA, VA 22314

EXAMINER

CHAKOUR, ISSAM

ART UNIT

PAPER NUMBER

4163

MAIL DATE

DELIVERY MODE

08/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/562,918	Applicant(s) MORIMOTO, SHINICHI	
	Examiner ISSAM CHAKOUR	Art Unit 4163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/19/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/29/2005;01/31/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The specification is objected to because the title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 17, 20, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirano et al (US 2004/0247278).
4. Regarding claim 17, Hirano teaches a communication system comprising:
a plurality of access point apparatus arranged along a predetermined route (See figure 6, items 11), a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route (See figure 6, items 33) and an intra-mobile-body

communication network for connecting the plurality of station apparatus (See figure 7A, items 31), the station apparatus being adapted to become belonging to one of the access point apparatus by wireless communication so as to be connected to a network by way of the access point apparatus (See figure 7A), the station apparatus located front-most in the moving direction of the mobile body (See figure 8A, item 33 in the first vehicle towards the second communication feasible area) being adapted to transmit the information acquired at the time of retrieving an access point apparatus to which the station apparatus located front-most in the moving direction of the mobile body is adapted to belong (See figure 7A, access point 19 in communication with item 33), to the station apparatus other than the station apparatus located front-most in the moving direction of the mobile body (See figure 8A-D, item 33 in the first vehicle that was in communication with item 19 in the first communication feasible area is no longer communicating with that access point, but item 33 in the last vehicle is still retrieving data through 19 in the first communication feasible area) by way of the intra-mobile-body communication network (See figure 7A, items 31).

5. Regarding claim 20, Hirano discloses a communication system in accordance with claim 17, wherein each of the station apparatuses has means for judging or detecting (See paragraph [0074], lines 4-11) if the own apparatus is located front-most in the moving direction of the mobile body or not (see also figure 6).

6. Regarding claim 21, Hirano teaches a communication system in accordance with claim 17, wherein when two or more than two station apparatus are located front-most

Art Unit: 2629

in moving direction, at least one of the station apparatus keeps on belonging to the access point apparatus while the other station apparatus retrieves an access point apparatus to which it is adapted to belong when the communication quality is degraded relative to the access point apparatus to which they are belonging (See paragraph [0074] and [0075]).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano.

10. In claim 28, Hirano teaches a communication system comprising:
a plurality of access point apparatus arranged along a predetermined route,
a plurality of station apparatus arranged on a mobile body adapted to move in the same direction along the predetermined route (See figure 6), the mobile body having at least a station apparatus arranged (See figure 6 also, there are at least one station) thereon and an inter-mobile-body communication network for connecting the plurality of station apparatus, the station apparatus being adapted (See figure 7A, access point 19 in communication with item 33) to become belonging to one of the access point apparatus by wireless communication so as to be connected to a network by way of the access point apparatus, each of the station apparatus having means for judging if the mobile body where the own apparatus is arranged is located front-most in the moving direction of the mobile body or not, the station apparatus arranged on the mobile body located front-most in the moving direction (See figure 8A-D, item 33 in the first vehicle that was in communication with item 19 in the first communication feasible area is no longer communicating with that access point, but item 33 in the last vehicle is still retrieving data through 19 in the first communication feasible area) being adapted to notify the station apparatus arranged in the mobile body not located front-most with the information acquired at the time of retrieving an access point apparatus to be belonging to by way of the intra-mobile-body communication network (See figure 7A, items 31).
Hirano does not teach that the plurality of station apparatuses are arranged on a plurality of mobile bodies adapted to move in the same direction along the predetermined route. However, the examiner takes official notice that it is well known in

the art and well within the grasp of one of ordinary skill in the art that the same invention could be extended to a plurality of mobile bodies rather than a single moving body with at least one station apparatus. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have multiple moving bodies communicating through the same infrastructure of access points apparatuses by means of handoff because internet service as an example is to be provided to multiple moving bodies (e.g. trains) in a given area where there are a plurality of rails.

11. Regarding claim 31, Hirano teaches the communication system according to claim 28, wherein when two or more station apparatuses on a mobile body is located front-most in the moving direction, at least one of the station apparatus keeps on belonging to the access point apparatus while the other station apparatus retrieves an access point apparatus to which it is adapted to belong when the communication quality is degraded relative to the access point apparatus to which they are belonging (See paragraph [0074] and [0075]). Hirano does not teach the system with two or more mobile bodies where station apparatus are arranged. However, as mentioned above, the examiner takes official notice that it is well known in the art and well within the grasp of one of ordinary skill in the art that the same invention could be extended to a plurality of mobile bodies rather than a single moving body with at least one station apparatuses. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have multiple moving bodies communicating through the same infrastructure of access points apparatuses by means of handoff because internet

Art Unit: 2629

service as an example is to be provided to multiple moving bodies (e.g. trains) in a given area where there are a plurality of rails.

12. Claims 18,19,29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano in view of Syed (US. 6,845,230).

13. Regarding claims 18 and 19, Hirano discloses the communication system as in claim 17. Hirano does not teach explicitly that the transmissions in the communication system is both push and pull transmission. However, Syed discloses a communication system wherein the transmission involved is a Push-Pull transmission (See column 1, lines 35-40). Note that Push and the corresponding Pull transmission is widely used in digital packet-based synchronous communications and broadcasting such as the internet. It would have been obvious to one of ordinary skill in the art to combine Hirano's invention to include internet service as taught implicitly in Syed, because a passenger in a train as disclosed Hirano might desire to check emails or other service online (See paragraph [0042] in Hirano, last line). Furthermore, Push-Pull transmission would also allow digital broadcasting at certain locations that a train might pass by.

14. Regarding claims 29 and 30, Hirano teaches the communication system in accordance with claim 28. Hirano does not teach explicitly that the transmissions in the communication system is both push and pull transmission. However, Syed discloses as mentioned above a communication system wherein the transmission involved is a Push-Pull transmission (See column 1, lines 35-40). It would have been obvious to one of

ordinary skill in the art to modify the invention as disclosed by Hirano to integrate a Push-Pull technology as taught by Syed for the reasons discussed above.

15. Claims 22-27 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano in view of Moelard (US 5,636,217).

16. Regarding claim 22, Hirano discloses a communication system comprising: a plurality of access point apparatus arranged along a predetermined route (See figure 6, items 11), a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route (See figure 6, station refers to items 33) and an intra-mobile-body communication network for connecting the plurality of station apparatus (See figure 7A, items 31), the station apparatus being adapted to become belonging to one of the access point apparatus so as to be connected to a network by way of the access point apparatus,

the station apparatus located front-most in the moving direction of the mobile body being adapted to store (Although Hirano does not explicitly teach storing the information, however sending information necessarily requires at least storing them in a memory for buffering after being processed, see paragraph [0075], lines 8-14) the information it acquires at the time of retrieving an access point apparatus (See paragraph [0075], lines 1-7) to be belonging to in the storage means by way of the intra-mobile-body communication network (e.g. the internal communication, see paragraph [0067], line 6), the station apparatus other than the station apparatus located front-most in the moving direction of the mobile body being adapted to refer to the information

Art Unit: 2629

stored by the front-most station apparatus in the storage means prior to retrieving an access point apparatus to be belonging to (See paragraph [0075], lines 8-14).

Hirano does not explicitly disclose that each of the station apparatus having storage means for storing information showing the access point apparatus to which it used to belong to. However, Moelard discloses one of a plurality of stations each having storage means for storing information showing the access point apparatus to which it used to belong to (See claim 8 step b).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hirano's handover process with Moelard's teaching of storing information by each station of the access point apparatus that previously was registered to, because storing the information of access point being connected to or registered to would allow other stations yet to be connected to have that information ready for a seamless handoff.

17. Regarding claim 32, Hirano discloses the communication system comprising a plurality of access point apparatus arranged along a predetermined route (See figure 6, items 11),

Hirano further discloses that a plurality of station apparatus arranged on a plurality of mobile bodies adapted to move in the same direction along a predetermined route, and that each of the said mobile bodies having at least a station apparatus arranged thereon (See figure 7b).and

an inter-mobile-body communication network for connecting the plurality of station apparatus (See figure 7A, item 31),

the station apparatus being adapted to become belonging to one of the access point apparatus by wireless communication so as to be connected to a network by way of the access point apparatus (See figure 7),

each of the station apparatus having means for judging if it is located front-most in the moving direction of the mobile body or not (See figure 6),

the station apparatus arranged in the mobile body located front-most in the moving direction being adapted to store(See paragraph [0075], lines 8-14) the information it acquires at the time of retrieving an access point apparatus (See paragraph [0075], lines 1-7) to be belonging to in the storage means by way of the intra-mobile-body communication network.

Hirano does not explicitly teach that each of the station apparatus having storage means for storing information showing the access point apparatus to which it used to belong to. He also does not teach that the station apparatus arranged in the mobile bodies other than the mobile body located front-most in the moving direction being adapted to refer to the information stored by the station apparatus arranged in the mobile body located front-most in the storage means prior to retrieving an access point apparatus to be belonging to.

18. Moelard discloses each of the station apparatus having storage means for storing information showing the access point apparatus to which it used to belong to

(See claim 8b). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hirano's handoff process such that each station on each of the plurality of the mobile bodies stores the information of the access point apparatus previously registered to as thought by Moelard because storing the information of access point being connected to or registered to would allow other stations yet to be connected to have that information ready for a seamless handoff.

19. Regarding claim 23, Hirano in view of Moelard discloses the communication system in accordance with claim 22. Hirano further teaches that the intra-mobile-body is a local area network connecting a plurality of stations in a mobile body (See figure 7A, items 31). Hirano does not teach that the storage means is connected to the intra-mobile-body communication network. However Moelard teaches that the storage means is connected to a wireless local area network (See claim 1). It would have been obvious to one of ordinary skill in the art to connect the storage means that contained access point information as taught by Moelard to other stations through a local area network taught by Hirano in order to perform transfer and exchange of such information for the purpose of handoff.

20. Regarding claim 24, Hirano in view of Moelard teaches the communication system according to claim 22, Hirano does not explicitly teach that the storage means is provided at each station. Moelard as mentioned above does teach the latter feature (See claim 8). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide in Hirano's invention each station in the mobile body with

storage means as taught by Moelard because access point information available at the front-most station would be referred to the next station moving toward the access point in the direction the mobile body is moving.

21. Regarding claim 25, Hirano in view of Moelard teaches the communication system in accordance with claim 22, Hirano further teaches that each of the station apparatuses has means for judging or detecting (See paragraph [0074], lines 4-11) if the own apparatus is located front-most in the moving direction of the mobile body or not (see also figure 6).

22. Regarding claim 26, Hirano in view of Moelard the communication system according to claim 25, Hirano further teaches wherein each of the station apparatus judges if the own apparatus is located front-most in the moving direction of the mobile body or not (See paragraph [0074], lines 4-11) according to the information from the front-most station (See paragraph [0075], lines 8-14). However Hirano does not teach that the information is from the storage means stored in its own storage and other station storage means. Moelard does teach said feature (See claim 8 b, c). Since the information about the next access point is retrieved from the storage means of the front-most station, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hirano's invention with Moelard's teaching because said information would allow other stations to determine if they are in the front-most and in the direction in which the mobile body is moving in order to successfully perform a seamless handoff.

Art Unit: 2629

23. Regarding claim 27, Hirano in view Moelard teaches the limitations as in claim 22, Hirano further teaches that when two or more than two station apparatus are located front-most in the moving direction (See paragraph [0066], line 6), at least one of the station apparatus keeps on belonging to the access point apparatus while the other station apparatus retrieves an access point apparatus (See figure 8A-D) to which it is adapted to belong when the communication quality is degraded relative to the access point apparatus (e.g. communication unfeasible area) to which they are belonging (See paragraph [0023]).

24. Regarding claim 33, Hirano in view of Moelard discloses the limitation as in claim 32. Hirano further teaches that the intra-mobile-body is a local area network connecting a plurality of stations in a mobile body (See figure 7A, items 31). Hirano does not teach that the storage means is connected to the intra-mobile-body communication network. However Moelard teaches that the storage means is connected to an intra-mobile-body communication network (e.g. wireless local area network, see claim 1). It would have been obvious to one of ordinary skill in the art to connect the storage that contained access point information to other stations through a local area network in order to perform transfer and exchange of such information for the purpose of handoff.

25. Regarding claim 34, Hirano in view of Moelard teaches the communication system in accordance with claim 32. Hirano does not explicitly teach that the storage means is provided at each station. Nevertheless, Moelard as mentioned above does

teach the latter feature (See claim 8). Note Moelard as mentioned above discloses that the storage means is connected to the intra-mobile-body communication network (e.g. wireless local area network, see claim 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide each station in the mobile body with storage means because access point apparatus information available at the front-most station (in the front-most mobile body) would be referred to the next station apparatus of the mobile body moving toward the access point in the direction the front-most mobile body is moving.

26. Regarding claim 35, Hirano in view of Moelard discloses the communication system according to claim 32. Hirano further discloses that the station apparatus in the mobile body located front-most in the moving direction judges (See paragraph [0074], lines 4-11) if the mobile body where the own apparatus is arranged is located front-most in the moving direction or not (See figure 7b). However Hirano does not teach that the information is from the storage means stored in its own storage and other station storage means. Moelard on the other hand does teach said feature as previously mentioned (See claim 8 b, c). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hirano's invention with Moelard's teaching because said information would allow other stations to determine if they are in the front-most and in the direction in which the mobile body is moving in order to successfully perform a seamless handoff.

27. Regarding claim 36, Hirano in view of Moelard teaches the communication system as in claim 32. Moreover, Hirano teaches that when two or more than two mobile bodies where station apparatus are arranged are located front-most in the moving direction (see figure 7b), at least one of the station apparatus keeps on belonging to the access point apparatus while the other station apparatus retrieves an access point apparatus to which it is adapted to belong when the communication quality is degraded relative to the access point apparatus to which they are belonging (See paragraph [0074] and [0075]).

Conclusion

The examiner cites a published application by Zhou et al (US 2005/0254818) pertaining to the applicant disclosure. Zhou teaches a method of connecting a local area network in trains to an Ethernet communication network while roaming or moving from one access point to another by means of handover.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ISSAM CHAKOUR whose telephone number is (571)270-5889. The examiner can normally be reached on Monday-Thursday (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Robinson can be reached on 5712722319. The fax phone number for

Art Unit: 2629

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IC

/Mark A. Robinson/

Supervisory Patent Examiner, Art Unit 4163